Library Professionals' Perception on the ICT Applications in Engineering College Libraries: A study on Tamil Nadu, India

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ARTICLE INFO

ABSTRACT

This study discusses the library professionals' perception of the ICT Applications in engineering college libraries in Tamil Nadu. The relevant data was collected from the library professionals in the self financing engineering colleges situated in Kanchipuram and Thiruvallur district of Tamil Nadu. 625 questionnaires were distributed, 504 replied with a response rate of 80.64%. It was found that the respondents with experience 'Below 5 years'gave 'Lack of infrastructure' as the first priority. 'Lack of interest on the part of users' and 'No support from administration in training library professionals' were the second and third preferences indicated by the respondents. The least preferences were given for 'Fear of ICT application'. Similarly, respondents with experience '6-10 years' indicated 'No support from administration in training library professionals' as the first priority. The least preference was given for 'Inadequate training in ICT applications' by the above respondents. It can be inferred that the professionals accepted and need the training in ICT applications.

1. Introduction

Libraries which are considered only as the storehouses of knowledge have gotten a new outlook in the modern Information Communication Technology (ICT) era. The activities which have been carried out manually in libraries with so much pain and strain are being carried out smoothly with the help of ICT and with greater effectiveness. Library organization, administration and other technical processing have become easier and more quantum of work can be done in a relaxed mood. These days academic libraries are very much interested in incorporating the latest ICT in their administrative functions, technical works and user services. The authorities have allotted grants to the colleges to install the ICT facilities and generate a digital environment.

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2. Role of ICT Tools in Academic Libraries

Information has played an important role in all societies since the dawn of civilization. However, in recent years, its increase in volume and accuracy, as well as greater access, has significantly elevated its value in all aspects of social life. The world is undergoing an ICT revolution, a revolution that has enormous socioeconomic implications for the developed and developing countries. Science and Technology have undergone revolutionary changes in the recent past. The new information and communication technologies are among the driving forces of globalization. They are bringing people together, and bringing decision makers unprecedented new tools for development. However, the gap between information 'have' and 'have-nots' is widening, and there is a real danger that the world's poor will be excluded from the emerging knowledge-based global economy. ICTs form part of the functions of today's complex society. ICT comprises a diverse set of technological tools and resources to create, disseminate, store and manage data and information.

3. Review of Literature

Williams et al. (2004) consider the internet to be a faster, more current carrier to use and greater in scope of information than electronic databases; however, they consider information from electronic database to be more reliable and focused. Age makes some difference in how CHS teachers direct their students to use electronic resources. The databases are found to be more reliable teachers and search engines are easy to use. Haneefa (2007) found that most of the libraries were hampered by lack of funds, lack of infrastructure, and lack of skilled professionals to embark on automation of all library management activities and application of ICT. A good number of the library users were not satisfied with the application of ICT in their libraries and indicated "inadequate ICT infrastructure" as their major reason for dissatisfaction. Parikh et al. (2008) conducted a study on ICT tools to reach the unreached. E-learning was studied with certain objectives and it was found that it improves employment prospects, helps people escape from poverty and overcomes the waste of potential talent. Anaraki and Babalhavaeji (2013) found that the awareness and utilization level of students of ICT in the three universities were lower than the average, and those who are not aware of the existence of the IDL portal used general search engines to meet their information needs. Bozdoğan and Özen (2014) results further suggest that the perceived use of computers, experience and confidence play a significant role, while lack of knowledge and skills, technical problems and lack of confidence negatively influence ICT self efficacy. Opara and Onyije (2014) examines the contention of this paper that though using ICT in Nigerian institutional administration may seem difficult, it is imperative to take advantage and invest in these ICTs to deal with the huge pressure faced in the institutional administration. The remarks highlight the need for infrastructure and how political considerations will push ICT ahead.

Seena and Pillai (2014) revealed that the library professionals in the Kerala University library system have relatively average level skills in various ICT related tasks in libraries. Libsys software was used more in libraries and a good number of professionals indicated that the main constraint

in the application of ICT in libraries is inadequate training in ICT applications. All the professionals expressed a positive attitude towards the application of ICT in libraries. Velmurugan and Amutha (2014) revealed the ICT based resources and services are now considered as the most vital part of the library resources. The library professional should always be up to date to increase information resources and services. Adu et al. (2014) said that private and public sector partnerships should be encouraged to fast track ICT-based projects for sustainable development in Nigeria; ICT has been successfully integrated in the process of state administration, leading to a view that there is an e-government. Sayeda (2015) conducted the sampling from PG and UG students of Arts and Social Science faculty to get an overview of the awareness and use of ICT by the users. Most of the UG and PG students of Arts and Social Science faculty are very much aware of ICT and use most of the applications of ICT. Rose (2015) conducted a study that goes further; the study suggests the ICT adoption model, very specific to higher education academia in India. The model is being tested already and has been recommended as a policy measure to the challenges faced in ICT adoption.

4. Need for the Study

The present study aims at analyzing the library professionals' perception of the ICT applications in engineering college libraries in Tamil Nadu. This study takes into account the awareness of ICT skills of library and information science professionals working in the self-financing engineering colleges. It deals with the web based technologies and tools while using libraries and library services, which includes opinions about ICT in library services including familiarity with ICT, problems in using ICT and attitude changes in the application of ICT.

5. Objectives of the Study

The following objectives are framed for the purpose of the present study.

1. To classify the professionals based on their years of experience
2. To identify the opinions about ICT in library services
3. To identify the use of ICT applications in libraries
4. To identify the means of updating their knowledge of the ICT environment by LIS professionals
5. To identify the use of Web applications in future libraries
6. To identify the problems using ICT technologies

6. Methodology

A main aim of this study is to analyse library professionals' perception of the ICT applications in engineering college libraries in Tamil Nadu. The relevant data was collected from the library

professionals of the self financing engineering institutions situated in the Kanchipuram and Thiruvallur districts of Tamil Nadu. Out of 625 questionnaires distributed, 504 responses were received. The response rate was 80.64%. The data was analysed by the Chi-square Test, Correlations, Mean and Standard Deviation applied besides percentile analysis using SPSS.

7. Limitations of the Study

The findings of this study were based on the information provided by library professionals of self-financing engineering libraries of Tamil Nadu and they do not represent other institutions. 504 library professionals working in 126 self-financing engineering colleges situated in Kanchipuram and Thiruvallur in Tamil Nadu are represented in the study.

8. Data Analysis and Interpretation

8.1 Distribution of Questionnaires

Questionnaires were distributed to 625 library professionals in the Kanchipuram and Thiruvallur Districts and the response received from them are given in Table 1.

Table 1. Distribution of Questionnaires

Si.No.	Districts	No.of Colleges	Distributed	Received
1	Kanchipuram	83	410(65.60%)	308(49.28%)
2	Thiruvallur	43	215(34.40%)	196(31.36%)
	Total	126	625(100%)	504(80.64%)

Table 1 shows the distribution of questionnaires among the library professionals in the Self-financing Engineering Colleges in the Kanchipuram and Thiruvallur Districts. In total, 83 colleges in are available in the Kanchipuram District and 43 colleges are available in the Thiruvallur District. Exactly 410 questionnaires in Kanchipuram District and 215 in Thiruvallur District were distributed. Out of these, 308 (75.12%) and 196 (91.16%) replied, It is pointed out that the majority of the respondents replied from the Kanchipuram District

8.2 Distribution of Professionals by Their Experience

The library professionals who are working in the engineering college libraries in Kanchipuram and Thiruvallur Districts are categorized by their years of experience and are shown in the Figure 1.
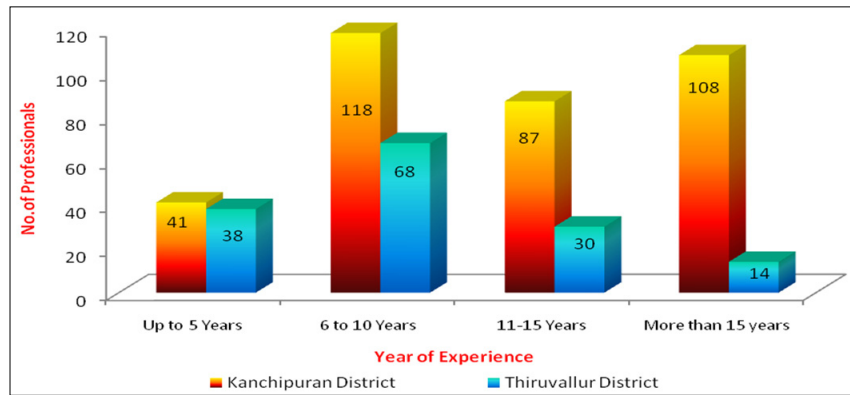
Fig. 1. Distribution of Professionals by their Experience

It is observed from Figure 1 that the library professionals are categorised by the years of experience;, the largest group of respondents have '6-10 years' of experience in their professions in both districts.

8.3 Opinion Regarding the ICT Application in Their Library

Opinion regarding the ICT application in their library has been analysed based on the responses from the library professionals and are shown in Table 2.

Table 2. Opinion Regarding the ICT Application in Their Library

Sl. No.	Attitude	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	WAM	Std. Dev.	Rank
1	Facilitates quick access to current data	55 (10.91%)	41 (8.13%)	21 (4.17%)	100 (19.84%)	287 (56.94%)	4.04	1.386	10
2	Improves quality of library service	32 (6.35%)	44 (8.73%)	25 (4.96%)	91 (18.06%)	312 (61.90%)	4.20	1.245	6
3	Helps to enhance knowledge and skills of library professional	29 (5.75%)	29 (5.75%)	25 (4.96%)	103 (20.44%)	318 (63.10%)	4.28	1.134	4
4	Increases job satisfaction of library professional	23 (4.56%)	28 (5.56%)	51 (10.12%)	87 (17.26%)	315 (62.50%)	4.04	1.340	9
5	Helps to improve communication	51 (10.12%)	34 (6.75%)	34 (6.75%)	110 (21.83%)	275 (54.56%)	4.35	1.116	1
6	Improves the status of library	23 (4.56%)	29 (5.75%)	31 (6.15%)	86 (17.06%)	335 (66.47%)	4.23	1.233	5
7	Makes an integration within the library	34 (6.75%)	28 (5.56%)	50 (9.92%)	68 (13.49%)	324 (64.29%)	4.29	1.160	3
8	Reduces workload of library professional	45 (8.93%)	26 (5.16%)	39 (7.74%)	82 (16.27%)	312 (61.90%)	4.17	1.296	8
9	Disturbs routine work of the library	23 (4.56%)	37 (7.34%)	33 (6.55%)	83 (16.47%)	328 (65.08%)	4.30	1.154	2
10	Affects regular budgeting provision	34 (6.75%)	34 (6.75%)	33 (6.55%)	112 (22.22%)	291 (57.74%)	4.17	1.222	7

It is observed from Table 2 that the respondents chose 'Helps to improve communication' as the highest influence of ICT. 'Disturbs routine work of the library' and 'Makes integration within the library' is the second and third preferences. The least preference was given to 'Facilitates quick access to current data.' The weighted average maturity value of all the variables ranges between 4.04 and 4.35. It can be inferred that all the ten variables lie between 'Agree' and 'Strongly Agree'. The deviation of opinion ranges between 1.116 and 1.386.

8.4 Opinion Regarding the ICT application in Library Vs Year of Experience

Opinion regarding the ICT application in their library Vs Years of Experience has been analysed based on the responses from the library professionals and is shown in Table 3.

Table 3. Opinion Regarding the ICT application in Library Vs Years of Experience

Sl. No.	Attitude	Less than 5 Years			6-10 Years			11-15 Years			Above 15 Years			Chi V
		M	SD	R	M	SD	R	M	SD	R	M	SD	R	
1	Facilitates quick access to current data	4.16	1.263	6	4.01	1.418	9	4.17	1.272	10	3.79	1.554	10	11.920
2	Improves quality of library service	3.84	1.603	10	4.25	1.187	4	4.25	1.218	5	4.18	1.250	6	18.646
3	Helps to enhance knowledge and skills of library professional	4.05	1.272	8	4.41	.990	1	4.19	1.222	7	4.24	1.174	5	10.078
4	Increases job satisfaction of library professional	4.53	.830	1	3.85	1.480	10	4.19	1.227	8	3.97	1.336	8	15.752
5	Helps to improve communication	4.39	1.104	3	4.34	1.169	2	4.40	.990	1	4.27	1.243	3	13.086
6	Improves the status of library	4.05	1.413	9	4.16	1.281	8	4.33	1.151	2	4.26	1.204	4	8.198
7	Makes an integration within the library	4.42	1.130	2	4.23	1.196	5	4.29	1.154	4	4.39	1.109	1	10.032
8	Reduces workload of library professional	4.29	1.137	5	4.17	1.370	7	4.18	1.293	9	4.11	1.213	7	23.915
9	Disturbs routine work of the library	4.13	1.319	7	4.29	1.107	3	4.32	1.212	3	4.37	1.075	2	17.543
10	Affects regular budgeting provision	4.34	1.236	4	4.21	1.178	6	4.23	1.131	6	3.93	1.452	9	18.180

(M-Mean, SD-Standard Deviation, R-Rank) Degrees of Freedom: 12, The table value: 21.026

Table 3 for those respondents with experience 'Below 5 years', has listed 'Increases job satisfaction of library professional' as the first priority. 'Makes integration within the library' and 'Helps to improve communication' are the second and third preferences. The least preferences were given

for 'Improve quality of library service'. The mean value of all the variables ranges between 3.84 and 4.53. The deviation of opinion ranges between .830 and 1.603.

Similarly, the respondents with experience of '6-10 years' have indicated that 'Helps to enhance knowledge and skills of library professional' as the first priority. 'Helps to improve communication' and 'Disturbs routine work of the library' are the second and third preferences. The least preferences were given for 'Increases job satisfaction of library professional' by the above respondents. The mean value of all the variables ranges between 3.85 and 4.41. The standard deviation ranged between .990 and 1.480.

The respondents with 11 - 15 years' of work experience have given 'Helps to improve communication' as the first priority. The second and third priorities are 'Improves the status of the library' and 'Disturbs routine work of the library' and the least value of the opinions are 'Facilitates quick access to current data'. The mean values of all the variables range between 4.17 and 4.40. The standard deviation ranges between .990 and 1.293.

The respondents with 'Above 15 years' of work experience have given 'Makes integration within the library' as the first priority. The second and third priorities are 'Disturbs routine work of the library' and 'Helps to improve communication' and the least are 'Facilitates quick access to current data'. The mean values of all the variables range between 3.79 and 4.39. The standard deviation ranges between 1.075 and 1.554.

A Chi square test has been administered to identify the significance. The calculated value is shown in Table 3. Table value is 21.026 for a 5% level of significance. The calculated value for all the values less than the table value which indicated the variables are insignificant among the groups, except for 'Reduces workload of the library professional'

8.5 Problems Faced When Using ICT

The problems faced when using web technologies have been analysed based on the responses among the library professionals and are shown in Table 4.

Table 4. Problems faced when using ICT

Sl. No.	Problems	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	WAM	Std. Dev.	Rank
1	Lack of knowledge among members	61 (12.10%)	32 (6.35%)	47 (9.33%)	80 (15.87%)	284 (56.35%)	3.98	1.415	5
2	Lack of support from administrators	32 (6.35%)	39 (7.74%)	54 (10.71%)	92 (18.25%)	287 (56.94%)	4.12	1.244	2
3	Lack of support from IT Departments	10 (1.98%)	39 (7.74%)	57 (11.31%)	89 (17.66%)	309 (61.31%)	4.29	1.065	1
4	Lack of co-operation among library staff	47 (9.33%)	42 (8.33%)	31 (6.15%)	67 (13.29%)	317 (62.90%)	4.12	1.361	3
5	Lack of time	49 (9.72%)	47 (9.33%)	27 (5.36%)	83 (16.47%)	298 (59.13%)	4.06	1.376	4
6	Lack of interest among users	55 (10.91%)	51 (10.12%)	34 (6.75%)	91 (18.06%)	273 (54.17%)	3.94	1.413	6

(SD- Strongly Disagree, D-Disagree, NO- No Opinion, A-Agree, SA- Strongly Agree)

It is observed from Table 4 that the respondents identified 'Lack of support from IT Departments' as the first. 'Lack of support from administrators', 'Lack of co-operation among library staff' are the second and third indicated by the library professionals. The lowest selection was 'Lack of interest among users'. The WAM value of all the variables ranges between 3.94 and 4.29. It can be inferred that all the variables lie between 'Agree' and 'Strongly Agree'. The deviation of opinion ranges between 1.065 and 1.415.

8.6 The Problems faced when Using ICT Vs Years of Experience

The problems faced when using Information and Communication Technology Vs Years of Experience has been analysed based on the responses among the library professionals and are shown in Table 5.

Table 5. The Problems Faced When Using ICT Vs Years of Experience

Sl. No.	Problems	Less than 5 Years			6-10 Years			11-15 Years			Above 15 Years			Chi. V
		M	SD	R	M	SD	R	M	SD	R	M	SD	R	
1	Lack of knowledge among members	4.08	1.302	3	3.93	1.439	5	3.97	1.457	6	4.07	1.339	3	12.731
2	Lack of support from administrators	4.05	1.229	4	4.09	1.278	3	4.25	1.157	2	3.94	1.327	5	6.680
3	Lack of support from IT Departments	3.97	1.284	5	4.35	1.032	1	4.35	1.018	1	4.16	1.111	2	14.329
4	Lack of co-operation among library staff	3.95	1.576	6	4.15	1.351	2	4.10	1.372	4	4.18	1.277	1	10.660
5	Lack of time	4.18	1.249	2	3.98	1.403	4	4.21	1.300	3	3.89	1.495	6	8.353
6	Lack of interest among users	4.34	1.122	1	3.77	1.492	6	4.03	1.402	5	3.98	1.332	4	15.247

(M-Mean, SD-Standard Deviation, R-Rank) Degrees of Freedom: 12, The table value: 21.026

From Table 5 those respondents with experience 'Below 5 years' have given 'Lack of interest among users', 'Lack of time' and 'Lack of knowledge among members' as the first, second and third selections. The least problem identification was given for 'Lack of co-operation among library staff'. The mean value of all the variables ranges between 3.95 and 4.34. The deviation of opinion ranges between 1.122 and 1.576.

Similarly, respondents with experience '6-10 years' have indicated 'Lack of support from IT Departments' as their first priority. 'Lack of co-operation among library staff' and 'Lack of support from administrators' are the second and third selections. The lowest problem identifications were given for 'Lack of interest among users' by the above respondents. The mean value of all the variables ranges between 3.77 and 4.35. The standard deviation ranged between 1.032 and 1.492.

The respondents with '11 - 15 years' of work experience, have given 'Lack of support from IT Departments' as the first priority. The second and third priorities are listed as 'Lack of support from administrators' and 'Lack of time' and the lowest values with respect to problems are 'Lack of knowledge among members'. The mean values of all the variables ranges between 3.97 and 4.35.

The standard deviation ranges between 1.018 and 1.475.

The respondents with 'Above 15 years' of work experience have given 'Lack of co-operation among library staff' as the highest problem identified. The second and third are 'Lack of support from IT Departments' and 'Lack of knowledge among members' and the lowest is 'Lack of time'. The mean values of all the variables ranges between 3.89 and 4.18. The standard deviation ranges between 1.111 and 1.495.

A Chi square test has been administered to identify the significance. The calculated value is shown in Table 5. Table value is 21.026 for a 5% level of significance. The calculated value for all the values is less than the table value which indicates the variables are insignificant in difference of opinion among experience groups towards the problems faced while using web technologies.

8.7 Problems faced by the Library Professionals in applying ICT in libraries

The problems faced by the library professionals in applying ICT in libraries has been analysed based on the opinion given by the respondents and is shown in Table 6.

Table 6. Problems faced by the Library Professionals in Applying ICT in libraries

Sl. No	Problems	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	WAM	Std. Dev.	Rank
1	Insufficient funds	73 (14.48%)	33 (6.55%)	36 (7.14%)	87 (17.26%)	275 (54.56%)	3.91	1.476	3
2	Inadequately trained staff in ICT applications	93 (18.45%)	45 (8.93%)	33 (6.55%)	94 (18.65%)	239 (47.42%)	3.68	1.568	8
3	Increasing operation costs of ICT application	102 (20.24%)	23 (4.56%)	45 (8.93%)	80 (15.87%)	254 (50.40%)	3.72	1.588	7
4	Lack of ICT knowledge on the part of users	61 (12.10%)	43 (8.53%)	17 (3.37%)	99 (19.64%)	284 (56.35%)	4.00	1.425	1
5	Lack of initiative on the part of library staff	50 (9.92%)	45 (8.93%)	58 (11.51%)	100 (19.84%)	251 (49.80%)	3.91	1.363	2
6	Lack of standard Library management software	69 (13.69%)	40 (7.94%)	55 (10.91%)	78 (15.48%)	262 (51.98%)	3.84	1.469	4
7	Lack of support from authorities	86 (17.06%)	31 (6.15%)	34 (6.75%)	95 (18.85%)	258 (51.19%)	3.81	1.526	5
8	Library staff is not interested in ICT adoption	98 (19.44%)	32 (6.35%)	31 (6.15%)	66 (13.10%)	277 (54.96%)	3.78	1.603	6

(SD- Strongly Disagree, D-Disagree, NO- No Opinion, A-Agree, SA- Strongly Agree R-Rank%)

It is observed from Table 6 that the respondents identified 'Lack of ICT knowledge on the part of users' as the greatest problem. 'Lack of initiative on the part of library staff' and 'Insufficient

funds' are the second and third. The least identified as a problem was 'Inadequately trained staff in ICT applications'. The weighted average maturity value of all the variables ranges between 3.68 and 4.00. It can be inferred that all the eight variables lie between 'Agree' and 'Strongly Agree'. The deviation of opinion ranges between 1.363 and 1.603.

8.8 Problems faced by the Library Professionals in applying ICT in libraries Vs Experience

The problems faced by the library professionals in applying ICT in libraries Vs Experience has been analysed based on the opinions given by the respondents and shown in Table 7.

Table 7. Problems faced by the Library Professionals in applying ICT in libraries Vs Experience

Sl. No.	Problems	Less than 5 Years			6-10 Years			11-15 Years			Above 15 Years			Chi. V
		M	SD	R	M	SD	R	M	SD	R	M	SD	R	
1	Insufficient funds	4.08	1.477	2	3.89	1.497	3	3.89	1.488	3	3.92	1.424	3	21.539
2	Inadequately trained staff in ICT applications	3.08	1.634	8	3.58	1.590	8	3.84	1.488	5	3.81	1.593	4	22.023
3	Increasing operation cost of ICT application	3.37	1.777	7	3.69	1.599	6	3.87	1.556	6	3.61	1.534	7	13.269
4	Lack of ICT knowledge on the part of users	4.21	1.255	1	3.78	1.514	5	4.19	1.294	1	4.00	1.492	2	12.822
5	Lack of initiative on the part of library staff	3.84	1.326	3	3.95	1.332	1	3.95	1.364	2	3.74	1.450	5	6.738
6	Lack of standard Library management software	3.76	1.550	4	3.86	1.462	4	3.89	1.492	4	3.73	1.421	6	19.264
7	Lack of support from authorities	3.71	1.626	5	3.90	1.441	2	3.86	1.510	7	3.54	1.684	8	11.684
8	Library staff are not interested in ICT adoption	3.68	1.757	6	3.66	1.640	7	3.75	1.646	8	4.12	1.322	1	17.803

(M-Mean, SD-Standard Deviation, R-Rank) Degrees of Freedom: 12, The table Value: 21.026

Table 7 for those respondents with experience 'Below 5 years' has identified 'Lack of ICT knowledge on the part of users' as the highest problem area. 'Insufficient funds' and 'Lack of initiative on the part of library staff' are the second and third. The least value was given to 'Inadequately trained staff in ICT applications'. The mean value of all the variables ranges between 3.08 and 4.21. The deviation of opinion ranges between 1.255 and 1.777.

Similarly, the respondents with experience of '6-10 years' indicated that 'Lack of initiative on the part of library staff' was the greatest problem. 'Lack of support from authorities' and 'insufficient funds' are the second and third. The least selection was given to 'Inadequately trained staff in ICT applications' by the above respondents. The mean value of all the variables ranges between 3.58 and 3.95. The standard deviation ranges between 1.332 and 1.640.

The respondents with '11 - 15 years' of work experience have given 'Lack of ICT knowledge

on the part of users' as the first problem. The second and third are 'Lack of initiative on the part of library staff' and 'Insufficient funds,' and the least value for the opinions is 'Lack of support from authorities'. The mean values of all the variables ranges between 3.75 and 4.19. The Standard Deviation ranges between 1.294 and 1.646.

The respondents with 'Above 15 years' of work experience, has identified 'Library staff are not interested in ICT adoption' as the first problem. The second and third are 'Lack of ICT knowledge on the part of users' and 'Insufficient funds' and the least is 'Lack of support from authorities'. The mean values of all the variables ranges between 3.54 and 4.12. The Standard Deviation ranges between 1.322 and 1.684.

Further, a Chi square test has been administered to identify the significance. The calculated value is shown in Table 7. Table 7 value is 21.026 for a 5% level of significance. The calculated value for all the values less than the table value indicated the variables except 'Insufficient funds' and 'Inadequate trained staff in ICT application' are insignificant in difference of opinion among experience groups with respect to problems faced by the professionals.

8.9 The Use Web Applications in Future Libraries

The use web application in future libraries has been analysed based on the responses received from library professionals and is shown in Table 8.

Table 8. Use of Web Applications in Future Libraries

Sl. No	Use of Web Application	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	WAM	Std. Dev.	Rank
1	Marketing library services	98 (19.44%)	34 (6.75%)	19 (3.77%)	116 (23.02%)	237 (47.02%)	3.71	1.566	6
2	Receiving feedback about library services	87 (17.26%)	25 (4.96%)	44 (8.73%)	102 (20.24%)	246 (48.81%)	3.78	1.512	5
3	Learning about users information requirements	33 (6.55%)	36 (7.14%)	22 (4.37%)	115 (22.82%)	298 (59.13%)	4.21	1.212	1
4	Creating staff and student profiles	53 (10.52%)	29 (5.75%)	29 (5.75%)	118 (23.41%)	275 (54.56%)	4.06	1.334	3
5	Explaining your library digital presence	70 (13.89%)	21 (4.17%)	52 (10.32%)	120 (23.81%)	241 (47.82%)	3.88	1.409	4
6	Providing mobile based information services	24 (4.76%)	49 (9.72%)	38 (7.54%)	78 (15.48%)	315 (62.50%)	4.21	1.215	2

It is observed from Table 8 that the respondents chose 'Learning about user's information requirements' as the highest priority. 'Mobile based Information Services' and 'Creating staff and student profiles' are the second and third preferences indicated by the library professionals. The least preference was given to 'Marketing library services'. The weighted average maturity value of all the variables

ranges between 3.71 and 4.21. It can be inferred that all the six variables lie between 'Agree' and 'Strongly Agree'. The deviation of opinion ranges between 1.212 and 1.566.

8.10 The Use of Web Applications in Future Libraries Vs Year of Experience

The use of web application in future libraries Vs Experience has been analysed based on the responses among the library professionals and it is shown in Table 9.

Table 9. The Use of Web Applications in Future Libraries Vs Year of Experience

Sl. No.	Use of Web Application	Less than 5 Years			6-10 Years			11-15Years			Above 15 Years			Chi. V
		M	SD	R	M	SD	R	M	SD	R	M	SD	R	
1	Marketing library services	3.89	1.467	3	3.62	1.597	6	3.76	1.556	6	3.74	1.569	5	4.977
2	Receiving feedback about library services	3.66	1.632	5	3.80	1.506	5	3.85	1.467	5	3.67	1.572	6	5.272
3	Learning about users information requirements	4.42	.919	1	4.07	1.326	3	4.33	1.110	2	4.20	1.229	1	20.595
4	Creating staff and student profiles	3.87	1.474	4	4.11	1.306	2	4.04	1.358	3	4.06	1.301	3	6.578
5	Explaining your library digital presence	3.55	1.589	6	3.87	1.374	4	3.94	1.399	4	3.89	1.434	4	5.004
6	Providing mobile based information services	4.16	1.405	2	4.13	1.291	1	4.35	1.114	1	4.16	1.141	2	34.517

(M-Mean, SD-Standard Deviation, R-Rank) Degrees of Freedom: 12, The table value: 21.026

Table 9 shows that respondents with experience 'Below 5 years' have given 'Learning about users information requirements' as the first priority. 'Providing mobile based information services' and 'Marketing library services' are the second and third preferences indicated by the respondents. The least preference was given to 'Explain your library digital presence'. The mean value of all the variables ranges between 3.55 and 4.42. The deviation of opinion ranges between .919 and 1.632.

Similarly, respondents with experience of '6 -10 years' have indicated 'Providing mobile based information services'as the first priority. 'Creating staff and student profiles' and 'Learning about user's information requirements' are the second and third, The least preferences were given to 'Marketing library services' by the respondents. The mean value of all the variables ranges between 3.62 and 4.13. The standard deviation ranges between 1.291 and 1.597.

The respondents with '11 - 15 years' of work experience have given 'Providing mobile based information services' as the first priority. The second and third priorities are given as 'Learning about users information requirements' and 'Creating staff and student profiles' and the least value of opinions is 'Marketing library services'. The mean values of all the variables ranges between 3.76 and 4.35. The Standard Deviation ranges between 1.114 and 1.556.

For the respondents with 'Above 15 years' of work experience 'Learning about user's information requirements' was the first priority. The second and third priorities are 'Providing mobile based information services' and 'Creating staff and student profiles' and the least priority was 'Receiving feedback about library services'. The mean values of all the variables ranges between 3.67 and 4.20. The standard deviation ranges between 1.229 and 1.572.

A Chi square test has been administered to identify the significance. The calculated value is shown in Table 9. Table value is 21.026 for a 5% level of significance. The calculated value for all the values less than the table value indicated the variables are insignificant except for the variable "Providing mobile based information services" in difference of opinion among experience groups towards use of web applications in future.

8.11 Opinions on Problems in Implementing ICT applications in your Library

Opinions on problems in implementing ICT applications in their library have been analysed based on the responses of the library professionals and are shown in the Table 10.

Table 10. Opinions on Problems in Implementing the ICT application in your Library

Sl. No.	Opinion	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	WAM	Std. Dev.	Rank
1	Inadequate training in ICT applications	89 (17.66%)	40 (7.94%)	40 (7.94%)	82 (16.27%)	253 (50.20%)	3.73	1.556	6
2	Lack of infrastructure	91 (18.06%)	39 (7.74%)	48 (9.52%)	87 (17.26%)	239 (47.42%)	3.68	1.552	7
3	No support from administration in training library professionals	71 (14.09%)	56 (11.11%)	33 (6.55%)	71 (14.09%)	273 (54.17%)	3.83	1.515	3
4	Lack of support from authorities for implementing ICT applications in library	87 (17.26%)	31 (6.15%)	31 (6.15%)	94 (18.65%)	261 (51.79%)	3.82	1.533	5
5	Lack of co-ordination among library staff	28 (5.56%)	45 (8.93%)	35 (6.94%)	162 (32.14%)	234 (46.43%)	4.05	1.179	1
6	No initiative from professional associations to conduct specialized training programs	105 (20.83%)	30 (5.95%)	44 (8.73%)	87 (17.26%)	238 (47.22%)	3.64	1.596	8
7	Lack of scope for library professionals due to ICT applications	46 (9.13%)	56 (11.11%)	45 (8.93%)	93 (18.45%)	264 (52.38%)	3.94	1.371	2
8	Lack of interest on the part of users	72 (14.29%)	50 (9.92%)	37 (7.34%)	85 (16.87%)	260 (51.59%)	3.82	1.497	4
9	Fear of ICT applications	120 (23.81%)	26 (5.16%)	44 (8.73%)	85 (16.87%)	229 (45.44%)	3.55	1.641	9

Table 10 shows the respondents chose 'Lack of co-ordination among library staff' as the highest

problem. 'Lack of scope for library professionals due to ICT applications' and 'No support from administration in training library professionals' are the second and third problems. The least identified problem choice was identified as 'Fear of ICT applications'. The weighted average maturity value of all the variables ranges between 3.55 and 4.05. It can be inferred that all the variables lie between 'Agree' and 'Strongly Agree'. The deviation of opinion ranges between 1.179 and 1.641.

8.12 Correlations among Professionals Opinion on Problems in Implementing ICT applications in your Library

The professional opinion data on problems in Implementing ICT applications in your Library has been calculated and has been shown in Table 11.

Table 11. Correlations among Professionals Opinion on Problems in Implementing the ICT application in your Library

Opinion	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9
Inadequate training in ICT applications	3.73	1.556	1								
Lack of infrastructure	3.68	1.552	-.024	1							
No support from administration in training library professionals	3.83	1.515	-.007	-.083	1						
Lack of support from authorities for implementing ICT applications in library	3.82	1.533	.039	-.137**	-.002	1					
Lack of co-ordination among library staff	4.05	1.179	.288**	-.055	-.088*	-.038	1				
No initiative from professional associations to conduct specialized training programs	3.64	1.596	.104*	.107*	.020	-.106*	.077	1			
Lack of scope for library professionals due to ICT applications	3.94	1.371	.092*	.024	.082	.018	.002	-.095*	1		
Lack of interest on the part of users	3.82	1.497	.109*	.035	.098*	.027	-.014	-.074	.140**	1	
Fear of ICT applications	3.55	1.641	.225**	.051	.066	.056	.126**	.031	-.087*	-.023	1

**. Correlation is significant at the 0.01 level (2-tailed).
 *. Correlation is significant at the 0.05 level (2-tailed).

It can be seen from the table that all the variables are correlated positively. Few of the variables are significant at the 99% level and the 95% level in 2 tailed tests.

Highly correlated variables
• 'Lack of co-ordination among library staff' and 'inadequate training in ICT applications'.
• 'Fear of ICT applications' and 'Inadequate training in ICT applications'.

Least correlated variables

- 'Lack of support from authorities for implementing ICT applications in library' and 'Lack of infrastructure'.
- 'No initiative from professional associations to conduct specialized training Programs' and 'Lack of support from authorities for implementing ICT applications in library'.

It can be inferred that the professionals are accepted and need the training in ICT applications.

8.13 Opinion on Problems in Implementing the ICT Application in your Library Vs Experience

Opinion on problems in implementing ICT application in their library has been analysed based on the responses among the library professionals and it is shown in Table 12.

Table 12. Opinion on problems in implementing the ICT application in your Library Vs Year of Experience

Sl. No.	Opinion	Less than 5 Years			6-10 Years			11-15 Years			Above 15 Years			Chi. V
		M	SD	R	M	SD	R	M	SD	R	M	SD	R	
1	Inadequate training in ICT applications	3.21	1.758	7	3.62	1.628	9	4.07	1.327	2	3.54	1.616	8	23.902
2	Lack of infrastructure	4.21	1.166	1	3.72	1.491	7	3.50	1.652	9	3.73	1.585	5	11.918
3	No support from administration in training library professionals	4.00	1.336	3	4.04	1.412	1	3.63	1.626	6	3.70	1.539	6	33.030
4	Lack of support from authorities for implementing ICT applications in library	3.71	1.691	6	3.81	1.505	5	3.87	1.588	4	3.77	1.430	4	23.569
5	Lack of co-ordination among library staff	3.95	1.138	4	3.95	1.276	2	4.21	1.044	1	3.98	1.208	2	25.307
6	No initiative from professional associations to conduct specialized training programs	3.13	1.818	8	3.78	1.507	6	3.56	1.678	7	3.69	1.496	7	28.505
7	Lack of scope for library professionals due to ICT applications	3.87	1.298	5	3.84	1.477	3	3.96	1.337	3	4.13	1.210	1	10.283
8	Lack of interest on the part of users	4.08	1.323	2	3.82	1.523	4	3.77	1.535	5	3.78	1.444	3	10.538
9	Fear of ICT applications	3.05	1.739	9	3.64	1.569	8	3.55	1.661	9	3.54	1.704	9	10.109

(M-Mean, SD-Standard Deviation, R-Rank) Degrees of Freedom: 12, The table Value: 21.026

Table 12 states the respondents with experience 'Below 5 years' have given 'Lack of infrastructure' as the first priority. The categories of 'Lack of interest on the part of users' and 'No support from administration in training library professionals' are the second and third priorities. The least value was given to 'Fear of ICT applications'. The mean value of all the variables ranges between 305 and 4.21. The deviation of opinion ranges between 1.166 and 1.739.

Similarly the respondents with experience '6 -10 years' have indicated that 'No support from administration in training library professionals' as the highest identified problem. 'Lack of co-ordination among library staff' and 'Lack of scope for library professionals due to ICT applications' are the second and third. The least value was given to 'Inadequate training in ICT applications'. The mean value of all the variables ranges between 3.62 and 4.04. The standard deviation ranges between 1.412 and 1.628

The respondents with '11 - 15 years' of work experience have given 'Lack of co-ordination among library staff' as the first priority. The second and third priorities are given to 'Inadequate training in ICT applications and 'Lack of scope for library professionals due to ICT applications,' and the least value of the opinions are 'Fear of ICT applications'. The mean values of all the variables ranges between 3.55and 4.21. The standard deviation ranges between 1.044and 1.652.

The respondents with 'Above 15 years' of work experience have given 'Lack of scope for library professionals due to ICT applications' as the first priority. The second and third are 'Lack of co-ordination among library staff' and 'Lack of interest on the part of users,' and the least choice of the opinions is 'Fear of ICT applications'. The mean values of all the variables ranges between 3.54 and 4.13. The standard deviation ranges between 1.210 and 1.704.

A Chi square test has been administered to identify the significance. The calculated value is shown in Table 12. Table value is 21.026 for a 5% level of significance. The calculated value for the variables 'Lack of infrastructure', 'Lack of scope for library professionals due to ICT applications', 'Lack of interest on the part of users' and 'Fear of ICT applications' were less than the table value, which indicated the variables are insignificant. There maining variables were identified as significant as problems in implementing the ICT application in your library.

9. Conclusion

ICT is highly important for individuals, not for profit Nowadays more library professionals are well qualified and well trained to apply ICT in library operation and library services. The professionals are able to assist users with the timely assistance to retrieve any kind of information from anywhere at any time. The advancement of science and technology has made a tremendous improvement and changed almost all walks of life. The services rendered with the help of ICT are faster and more effective. The widespread use of ICT opens up new opportunities for information to harness these technologies and services to serve all goals. In the last few years, there have been many initiatives at the highest level of government to promote the construction of a global information infrastructure. The secret of success in all sectors of society depends on the optimum utilization of information technology. Moreover, it creates faith and confidence about the products and services of an organization among its customers. The advances in information technology and the advent of internet and e-commerce have resulted in the knowledge of products helping a substantial portion of the economic growth of many countries. Countries that master the techniques of creating, managing and protecting their knowledge and information products will emerge as the superpowers in the

ensuing knowledge era.

The growth and development of ICT is one of the most significant achievements of academic libraries. Academic libraries have been facing the challenges of various external forces like the explosion of information and knowledge, developments in ICT and a resource crunch. The resource crunch is due to various factors and the solution to meet the situation lies in resource generation and this is absolutely essential in the academic libraries. In the view of the findings it can be concluded that the library professionals must be aware of and utilize the information communication technology facilities and tools in their day to day library activities and services in their respective libraries. Only then can the professionals shine and survive with multiple skills to handle information in academic and research community efficiently to impart the quality educations in the world. The library professionals must also create the awareness of web based technology and tools among the end users to fully utilize the resources and services available to them.

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